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ABSTRACT

Research by developmental psychologists has investigated metaphor comprehension without its surrounding context. This research has the positive feature of being unidirectional, all indicating that the older the child, the greater the possibility that metaphor will be understood. The disadvantages of the studies for educators include the fact that these studies provide no context for metaphor; children would seldom if ever encounter a metaphor completely in isolation. Also, children are seldom asked in school-related tasks to specify the meaning of a sentence, especially not one isolated from context. Research results suggest that when metaphors are presented in isolation, and when children are required to explain their meaning, the metaphors themselves and the explanation task are difficult for children. However, when children are presented metaphors in their natural context, metaphors do not seem to impede comprehension, and in one study, metaphors facilitated comprehension. (DF)

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Recent Research on Children's Metaphoric Understanding

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(9-11:45)

Since our purpose here is to examine the literature which surrounds metaphor, I think it is important to set up some criteria for selection of those studies which seem most relevant to education and to educators. After all, Shibles compiled a bibliography of metaphor-related works in 1971 and it contained some 4,000 entries. Booth (1978) said recently that discussions of metaphor have "multiplied astronomically in the last 50 years;.. (and) and that the year 1977 produced more titles than the entire history of thought prior to 1940." (p. 49). My mathematics ability may be questionable but I'd say that means there is a very large number of metaphor-related studies. So it appears that some selection criteria must be established; Bess has allotted me exactly twenty-five minutes!

After establishing criteria for metaphor-related research relevant to educators, on the other hand, I find that I might be left with little to say. And there's still the twenty-five minutes that Bess allotted me! Taking the middle ground, I would like to criticize the metaphor-related research in terms of an educator's need to know what happens when a child encounters a metaphor in his reading, and leave it to Bess to present her more significant research findings.

Developmental psychologists have delved into the question of metaphor comprehension, generally asking questions which are peripherally of interest to educators. Specifically, they have investigated the comprehension of metaphor without its surrounding, supporting context. Gardner and Winner (1978) have explici-ly

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stated that "...one must ensure that the metaphors are not being interpreted simply by attending to the context, in which case the metaphor is actually ignored." (p. 131). Yet they offer no data to support this contention. Isolated metaphors, as we shall soon see, are often obscure, nonsensical, or nonmetaphorical.

For example, these metaphors (Overhead #1) were presented to fifty "bright normal" boys ranging in age from four to thirteen. In this study by Billow (1975), there were actually two different kinds of metaphors studied. Billow hypothesized that the similarity metaphors would be more readily understood than the proportional metaphors. His data bear out this hypothesis. Some younger children could understand the simpler similarity metaphors but only older children could understand the proportional metaphors. Billow attributed this developmental understanding of metaphor to cognitive development. Only formal operational thinkers could understand the proportional metaphors. However, even a brief glimpse at the proportional metaphors indicates that, out of context, the proportional metaphors are rather obscure. Several of us have yet to figure out what Billow's "correct response" to "Summer's Blood is in Ripened Blackberries" might be.

An interesting aspect of Billow's metaphors is that the sentences were gathered and "adapted" from anthologies of children's poetry. This feature lends some credence to the claim that the research has some utilitarian value for educators. It is not clear, however, where one might encounter a metaphor such as "Hair is spaghetti" in natural language text. Research by Winner and Gardner (1976) does not even share this degree of ecological validity (Overhead #2). The origin of these sentences is not clear. In their study, Winner and Gardner hypothesized that there are three levels of premetaphoric

understanding which precede genuine metaphoric understanding. As you can see from the overhead, responses were classified as magical, metonymic and primitive metaphoric. They hypothesized that the older the child, the greater the possibility of a genuine metaphoric response. Winner and Gardner collected data from 180 "lower middle class" children. Their hypotheses were supported both when they gave children multiple choice options and when they asked children to explain what the metaphors meant. Ortony et al., 1977 have suggested that metacognitive/linguistic skills of children may not be developed to the extent necessary to respond to the explanation task, i.e. although the cognitive/linguistic skills necessary for understanding may be fully developed, the metacognitive/linguistic skills necessary for explaining what a metaphor means may not yet be fully developed. Similarly, Ortony, et al. have suggested that the random ordering of the multiple choice format may have made the task more difficult for the younger children who may have a shorter memory. The children were required to repeat verbatim the item chosen. These tasks - repeating a multiple choice item verbatim and explaining the meaning of a sentence - are not the types of tasks children are likely to encounter in school.

Pollio and Pollio (1977) took a different approach, although they continued in the metaphor-in-isolation tradition. These researchers asked children to respond to metaphors written by children in an earlier (1974) study. (Overhead #3) They elected to use a written, multiple choice format. 149 children in grades 4-9 were tested. There was, overall, increasing ability to choose the correct literal responses across the grade levels. This was true whether the metaphors were "novel" or

"dead", i.e. whether they are imaginative uses of language or an established language pattern. Novel metaphors appeared to be only slightly more difficult to understand, indicating that a novel metaphor is where you find it; even established language patterns may be difficult for children if they have not heard them before. Although this multiple choice format is more like the kinds of tasks that children encounter in school, it is not very often that they would naturally encounter one or two sentences of "text!"

The research discussed thus far has one advantage and several disadvantages as far as education is concerned. The one advantage is that it is unidirectional. All of it indicates that the older the child, the greater the possibility that metaphor will be understood. There is something reassuring about findings which are replicated under several sets of conditions and with several different kinds of subjects. However, the disadvantages of the studies, for educators, outweigh the one advantage. First, the fact that these studies provide no context for the metaphor renders them almost useless for educators. Children, or adults for that matter, would seldom if ever encounter a metaphor completely in isolation. Second, children are seldom asked in school-related tasks to specify the meaning of a sentence, especially not one isolated from its context. Children would never be asked to repeat a selected multiple choice item verbatim.

Several educators have attempted to address some of these concerns. J.W.A. Smith (1976) claimed to incorporate context into a fairly recent study. (Overhead #4). The metaphoric text on the overhead was taken from "fifth grade curriculum literary materials." Upper socioeconomic

sixth and eighth graders in Alberta, Canada were asked to explain both the "passage" and the specific, underlined metaphor. These "passages" (there were six) ranged from one to three sentences in length. In fact, the one sentence "passage" (the 2nd on the overhead) contains sixty-five complexly structured words. The meaning of this selection is still not entirely clear to me, although I have probably read it at least twenty-five times. The syntactic complexity of this sentence would probably make it difficult to understand even if it contained "literal" language only. These "passages" contain numerous examples of metaphors within a very short selection - many more than children would normally be expected to encounter. Smith found, not surprisingly, that sixth and eighth graders had difficulty in understanding the "passages" and the metaphors. Eighth graders were, however, more likely to correctly interpret the metaphors than sixth graders.

Obviously, I question the validity of the term "passage" to describe the one-to-three sentence selections that Smith elected to use in this study. The selections are highly, and perhaps unnaturally, metaphorical, thereby rendering the generalizeability of the results questionable. Finally, the explanation task which the subjects were asked to perform may not be appropriate, given the nature of the selections. Many of us would be hard pressed to explain the excerpt from The Wind in the Willows immediately after reading it.

A very unique approach to the question of children's understanding of metaphor was taken by Cunningham (1976). He constructed two fifteen-sentence, two hundred word passages with the same content: one containing metaphors and one not containing metaphors. All vocabulary words were limited to

those labeled "familiar" on the Dale-Chall Readability Formula list. He then used the cloze deletion pattern on both passages. (Overhead #5) The metaphor passage is of interest and is the one presented here. Subjects were 190 sixth-graders in a middle-Georgia country.

The subjects' task was, of course, to replace the deleted words the mutilated text. Subjects receiving this metaphor passage did significantly poorer in exact replacement than nonmetaphoric-passage readers.

These results are not at all surprising. The constructed metaphor passage is highly and unnaturally metaphorical. Specifically, there are eighteen metaphors, many of them "mixed metaphors," within the two hundred word passage. My own research, though limited, indicates that metaphors do not normally, or naturally occur at that rate, are not present throughout a passage as Cunningham's are, and do not normally represent such diverse domains of thought within such a selection. I have never seen a natural text that contained metaphors such as "His mother heard the front door bite shut all the way to the kitchen." And children were to supply "bite" in this cloze task! Although cloze is purported to be a measure of comprehension, it's construct validity has been questioned (Vaughan and Meredith, 1978). In this case, asking children to supply metaphors (and another writer's at that) is hardly a measure of children's ability to understand metaphors. It is unlikely that children even realized that their task was to imbed metaphors into the text.

Finally, there are two studies which assessed differences in text comprehension among sixth grade students. In both studies, the intent was to determine differences in comprehension between a text containing metaphors and a text containing equivalent literal information. In the

first study by Arter (1976), a passage (800 words) on the topic of the Sasquatch was presented. She hypothesized that the metaphor passage would produce better written recalls, higher interest ratings, and better responses to multiple choice questions. There were no significant differences in interest ratings, no significant difference in multiple choice responses, and no significant differences in written recalls. These results are in contrast to those found for metaphor-in-isolation studies. Still, she was not satisfied with her results. She concluded that her multiple choice items were unreliable and thus invalid. Arter suggested that the written recall situation was inappropriate for her sixth grade subjects; she suggested several directions for new research.

Tepaske and Pearson's (1978) passage was another descriptive essay, this time based on the Egyptian pyramids. They asked the children to recall as much information as possible in an individual interview situation. Ten probe questions were then designed to elicit further information. Tepaske and Pearson found that recall of passages containing metaphors is superior to recall of a passage containing equivalent information but no metaphors.

It is somewhat clear that when metaphors are presented in isolation, and when children are required to explain what they mean, either the metaphors themselves or the explanation task is difficult for children. On the other hand, when children are presented metaphors in their natural context, metaphors do not seem to significantly impede comprehension. If we are to place emphasis upon Tepaske and Pearson's study, in which children were given individual interviews, metaphors facilitated comprehension. In none of these studies, however, was the process of metaphor comprehension explored. Bess's study is a significant attempt to fill this void in literature (Altwerger, 1979).

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OVERHEAD #1

BILLOW, 1975

SIMILARITY METAPHORS: TOPIC IS CLASSIFIED WITH A VEHICLE

HAIR IS SPAGHETTI.

THE STARS ARE A THOUSAND EYES.

PROPORTIONAL METAPHORS: FOUR OR MORE ELEMENTS ARE COMPARED PROPORTIONALLY

MY HEAD IS AN APPLE WITHOUT ANY CORE.

(HEAD: APPLE) : (BRAIN: CORE)

SPRING IS A LADY IN A NEW COAT.

SUMMER'S BLOOD IS IN RIPENED BLACKBERRIES.

DREAMS PASSED IN A PARADE.

DEATH WAVES A PALE FLAG.

OVERHEAD #2

WINNER, ET AL., 1976

SENTENCES:

AFTER MANY YEARS OF WORKING AT THE JAIL, THE PRISON GUARD HAD BECOME A HARD ROCK THAT COULD NOT BE MOVED.

THE SMELL OF MY MOTHER'S PERFUME WAS BRIGHT SUNSHINE.

RESPONSE CATEGORIES:

NAME	EXAMPLE
MAGICAL	THE KING HAD A MAGIC ROCK AND HE TURNED THE GUARD INTO ANOTHER ROCK.
	HER PERFUME WAS MADE OUT OF RAYS FROM THE SUN.
METONYMIC	THE GUARD WORKED IN A PRISON THAT HAD HARD ROCK WALLS.
	WHEN SHE WAS STANDING OUTSIDE IN THE BRIGHT SUN SHE WAS WEARING PERFUME.
PRIMITIVE METAPHORIC	THE GUARD HAD HARD, TOUGH MUSCLES.
	HER PERFUME WAS A BRIGHT YELLOW COLOR LIKE THE COLOR OF THE SUN.
GENUINE METAPHORIC	THE GUARD WAS MEAN AND DID NOT CARE ABOUT THE FEELINGS OF THE PRISONERS.
	HER PERFUME HAD A WONDERFUL SMELL.

OVERHEAD #3

POLLIO AND POLLIO, 1977

1. I WENT INTO THE KITCHEN AND ATE UP A STORM.

   A. I ATE A LOT.

   B. I DRANK SOME WHITE LIGHTNING FROM THE REFRIGERATOR.

   C. I ATE SO MUCH IT RAINED.

   D. I LIKE TO EAT WHEN IT'S RAINING.

2. I SAW A COFFIN AND WAS SCARED. I WALKED SLOWLY TOWARD IT. I WAS AMAZED MY FEET WERE BRAVE ENOUGH TO TAKE ME THERE.

   A. I DID NOT THINK I WOULD HAVE THE COURAGE TO DO IT.

   B. MY NEW SNEAKERS MADE ME FEEL I COULD DO ANYTHING.

   C. MY FEET HAVE A MIND OF THEIR OWN.

   D. SOMEHOW I WAS PULLED TO THE COFFIN AGAINST MY WILL.

OVERHEAD #4

J.W.A. SMITH, 1975

THE PRINCESS SARALINDA WAS TALL, WITH FRESIAS IN HER DARK HAIR AND SHE WORE SERENITY BRIGHTLY LIKE A RAINBOW. IT WAS NOT EASY TO TELL HER MOUTH FROM THE ROSE, OR HER ROW FROM THE WHITE LILAC. HER VOICE WAS LIKE FARAWAY MUSIC AND HER EYES WERE CANDLES BURNING ON A TRANQUIL NIGHT.

(THURBER, 13 CLOCKS)

THE 'POOP-POOP' RANG OUT WITH A BRAZEN SHOUT IN THEIR EARS, THEY HAD A MOMENT'S GLIMPSE OF AN INTERIOR OF GLITTERING PLATE-GLASS AND RICH MOROCCO, AND THE MAGNIFICENT MOTOR CAR, IMMENSE, BREATH-SNATCHING, PASSIONATE, WITH ITS PILOT TENSE AND HUGGING HIS WHEEL, POSSESSED ALL EARTH AND AIR FOR THE FRACTION OF A SECOND FLUNG AN ENVELOPING CLOUD OF DUST THAT BLINDED AND ENWRAPPED THEM UTTERLY, AND THEN DWINDLED TO A SPECK IN THE FAR DISTANCE, CHANGED BACK INTO A DRONING BEE ONCE MORE.

(GRAHAME, THE WIND IN THE WILLOWS)

OVERHEAD #5

CUNNINGHAM, 1976

METAPHOR PASSAGE

BILL ESCAPED SCHOOL AT THREE O'CLOCK WITH HIS BOOKS WEIGHING DOWN HIS ARM. AS HE SWEPT BY BOB, THE POLICEMAN, HE SAID, "HELLO," LIKE HE ALWAYS DID. BOB BEAMED, "THAT WAS A PEACH OF A THING YOU DID TODAY, BILL! I JUST READ ABOUT IT."

BILL WHIPPED HOME AND __POPPED__ IN THE DOOR. HIS __MOTHER__ HEARD THE FRONT DOOR __BITE__ SHUT ALL THE WAY __TO__ THE KITCHEN. "MOTHER, SWITCH __ON__ YOUR EYES," HE SHOUTED __AS__ HE SKATED TO HER __SIDE__. "MY TEACHER AND I __ARE__ SPREAD ALL OVER THE __NEWSPAPER__!"

MRS. GLASS DRIED HER __HANDS__ ON THE TONGUE OF __HER__ APRON, "LET ME SEE, __BILL__."

HER FACE WAS A __SUN__, "THIS IS HEAVEN'S PAINTING, __BUT__ TELL ME ALL ABOUT __IT__."

"WELL, MOTHER, WHEN I __DANCED__ INTO SCHOOL THIS MORNING, __MRS.__ DAY WAS PITCHING WORDS __WITH__ A MAN IN THE __HALL__. HER FACE GROANED LIKE __HE__ WAS SCARING HER OR __SOMETHING__."

"I GOT IVORY FACED __AND__ LASHED DOWN TO TELL __COACH__ BLACK WHAT WAS HAPPENING. __HE__ WAS STUCK TO HIS __CHAIR__ BUT WHEN I SPILLED TO HIM WHAT I HAD SEEN, HE LEFT ME THERE AND RAN DOWN THE HALL. I FOLLOWED HIM LIKE A DOG, BUT HE WAS MOVING FAST."